

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

### 1996-97 ENGINES

#### 4.3L V6 - Trucks

## ENGINE IDENTIFICATION

**NOTE:** For repair procedures not covered in this article, see **ENGINE OVERHAUL PROCEDURES** article in **GENERAL INFORMATION**.

Engine is identified by eighth character of Vehicle Identification Number (VIN). VIN is stamped on a metal tag on top left end of instrument panel, near windshield. See **ENGINE IDENTIFICATION CODES** table.

Engine can also be identified by engine identification (ID) number. Number is stamped on front of cylinder block, immediately forward of right cylinder head or on left side of cylinder block, on engine-to-transmission mating flange.

### ENGINE IDENTIFICATION CODES

Engine	(1) VIN Code	Engine ID
CSI	W	L35
CSI	X	LB4
(1) Eighth character of VIN.		

## ADJUSTMENTS

### VALVE CLEARANCE ADJUSTMENT

**NOTE:** Although valve clearance adjustment is not usually required (engine uses hydraulic valve lifters), perform the following procedure after servicing valve train.

Engine uses screw-in rocker arm studs with a shoulder. Tighten rocker arm nuts to specification. See **TORQUE SPECIFICATIONS** table.

### SHIFT CABLE ADJUSTMENT

**NOTE:** When installing shift cable, **DO NOT** pull shift lever ball stud forward of transmission shift lever ball stud.

Express, "C" & "K" Pickup, Savana, Sierra & Tahoe

1. Ensure transmission shift lever is in mechanical park position. Rotate control lever clockwise until it reaches it's final stop position. Apply parking brake. Raise and support vehicle.
2. Slide Black retaining clip forward on shift cable end far enough to allow White lock button to be pushed out. Push White lock button on shift cable end out far enough to free metal core adjust body inside cable

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

end. DO NOT push White lock button completely out.

3. Inspect metal core adjust body on shift cable end for dirt or debris that may restrict its travel. If travel of metal core adjust body remains restricted, shift cable assembly must be replaced. Lower vehicle. Ensure parking brake is applied.
4. Turn ignition switch to ON position. Move transmission shift lever from Park to One and back to Park position 10 times. Place shift lever to Park. Turn ignition switch to OFF position. Raise and support vehicle. Ensure transmission control lever is in mechanical park position.
5. Rotate control lever clockwise until it reaches its final stop position. Push White lock button in to secure core adjuster body inside shift cable end. Slide Black retainer clip rearward over shift cable end until it covers White lock button and locks in place over shift cable end. Ensure parking brake is applied. Lower vehicle.

### Astro & Safari

1. Ensure shift cable is not restricted. Place steering column shift lever into Neutral. Position shift cable to assume a natural routing. Shift cable must be free to move .80" (20 mm) during adjustment.
2. Pull cable end completely forward and release it. When cable is pulled completely forward and released, adjustment spring will position cable to its most rearward position. Connect end of shift cable to transmission shift lever stud ball.

## TROUBLE SHOOTING

**NOTE:** To trouble shoot mechanical engine components, see appropriate table in **TROUBLE SHOOTING** article in **GENERAL INFORMATION**.

## REMOVAL & INSTALLATION

**WARNING:** On vehicles equipped with air bag restraint system, see appropriate **AIR BAG RESTRAINT SYSTEM** article before servicing steering wheel or column. Use extreme caution to avoid personal injury and vehicle damage.

**CAUTION:** When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See **COMPUTER RELEARN PROCEDURES** article in **GENERAL INFORMATION** before disconnecting battery.

**NOTE:** For reassembly reference, label all electrical connectors, vacuum hoses and fuel lines before removal. Also place mating marks on engine hood and other major assemblies before removal.

## FUEL PRESSURE RELEASE

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

Disconnect battery terminals. Loosen fuel tank cap to relieve tank pressure. Connect one end of fuel gauge hose to pressure relief fitting at rear of intake manifold. Place other end of hose in a container. Open relief valve to release pressure.

### COOLING SYSTEM BLEEDING

1. Fill radiator to base of filler neck. Start engine. Place A/C-heater control in any position except MAX. Select highest temperature setting. Idle engine until lower radiator hose is hot.
2. Increase engine speed to 3000 RPM and then back to idle. Do this 5 times to expel any air trapped in system. Fill radiator as necessary. Install radiator cap. Allow engine to cool. Fill coolant recovery reservoir as necessary.
3. Crush and add 2 Coolant Sealant Pellets (GM P/N 3634621) or equivalent to radiator (if reservoir is not pressurized) or coolant reservoir (if reservoir is pressurized).

### POWER STEERING BLEEDING

**NOTE:** If air was introduced into hydraulic system during servicing, bleed system. Aerated fluid, which appears Light Tan in color, results in poor steering performance and will cause pump damage.

1. Turn ignition off. Raise and support vehicle with front wheels off ground. Using steering wheel, turn wheels fully to left. Add power steering fluid to FULL COLD mark on dipstick. Turn wheels from side to side at least 20 times, but DO NOT touch steering stops. Add fluid as necessary to maintain level at FULL COLD mark.
2. Start engine. With engine idling, check fluid level. Add fluid as necessary to bring fluid level to FULL COLD mark. Return wheels to center position. Lower vehicle. Continue to run engine for 2 to 3 minutes to raise temperature of fluid and eliminate trapped air. Turn steering wheel in both directions.
3. Road test vehicle. Check for leaks. Ensure fluid level is at FULL HOT mark when fluid is stabilized at operating temperature.

### ENGINE

**CAUTION:** Minimal clearance exists between oil pump pick-up tube and bottom of oil pan. DO NOT place jack under oil pan, crankshaft pulley or any sheet metal when lifting engine.

**WARNING:** Provide addition support for opposite end from which components are being removed. When removing major components of vehicle, vehicle frame should be chained to hoist pads at same end as removed components to prevent tip-off. Failure to follow these precautionary measures could result in vehicle damage or serious personal injury.

**NOTE:** Flush out oil and engine cooling system when installing new engine.

Removal (Astro & Safari)

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

1. On this vehicle, engine must be removed out of bottom of vehicle. Release fuel system pressure. See **FUEL PRESSURE RELEASE** . Remove battery. Remove air filter assembly and if equipped, disconnect cruise control cable from throttle body. Disconnect cruise control stepper motor electrical connector. Drain cooling system. Raise and support vehicle.
2. Remove drive shaft. Disconnect transfer case vent hose. Disconnect exhaust pipes from manifolds and behind catalytic converter. Remove park brake bracket from frame. Disconnect rear brake line from metering proportioning valve (combination valve). Remove flywheel cover, 3 torque converter bolts (A/T), starter and oil filter. Disconnect shift linkage. Disconnect engine wiring harness from transmission and frame.
3. Disconnect fuel lines from sub-frame. Disconnect transmission fluid lines and engine oil cooler lines from radiator. Remove lower fan shroud bolts. Disconnect power steering cooler from front air deflector. Disconnect air bag sensor connector. Remove motor mount through-bolts. Lower vehicle. Remove front bumper.
4. Remove headlight bezels and grille. Remove lower radiator close-out panel, radiator support braces and radiator cross brace. Remove hood latch mechanism. Discharge A/C system (if equipped) using approved refrigerant recovery/recycling equipment. Remove upper fan shroud and radiator.
5. Remove radiator filler panels. Remove engine cover. Disconnect A/C hose from accumulator and condenser. Remove A/C compressor and bracket. Remove power steering pump. Disconnect master cylinder and tie to oil fill tube. Disconnect steering shaft. Disconnect wheel housing splash shields. If equipped, disconnect rear A/C lines at rear crossmember.
6. Disconnect vacuum hoses as necessary. Disconnect fuse box and wiring harness from bulkhead connector, and all related electrical connectors. Lay harness on engine. Remove right kick panel. Remove CPI or TBI unit from intake manifold. Push connector and harness through firewall. Remove distributor cap and A/C accumulator. Disconnect fuel line from injection unit. Pull fuel lines through crossmember and lay lines on transmission. Remove fuel tank electrical connector.
7. Remove transmission dipstick tube (A/T). Disconnect heater hose from heater core. Remove horn. Attach side lift hoist. Attach Body Protection Hoist Adapter Set (J41602), Twin Post Hoist Frame Support (J41617), and Universal Lift Bracket (J41427). Support transmission. On 4WD, disconnect transfer case to engine block support brace. Remove 9 bellhousing bolts. Lower engine from vehicle.

### Installation

1. Place engine in position on sub-frame. Install engine mount through bolts. Torque to specification. See **TORQUE SPECIFICATIONS** . Remove engine lift Adapter (J-41427).
2. Connect transmission to engine, torque to specification. See **TORQUE SPECIFICATIONS** . Install exhaust "Y" pipe to engine. On 4WD models, install transfer case support brace. Route and connect all fuel lines, hoses and transmission wiring harness. Connect steering shaft and wheel housing splash shields.
3. Install distributor cap. Connect heater hose from coolant pump. Connect harness at knock sensor module. Connect wiring harness at bulkhead. Install CPI or TBI unit to intake manifold. Install A/C compressor.
4. Lower vehicle into position for engine/sub-frame installation. Install sub-frame bolts and tighten in sequence. See **Fig. 1** . Connect engine electrical harness. Route and install remaining accessory, bulkhead and fuse box wiring. Secure fuse box. Connect wheel housing splash shields to frame. Install steering shaft and torque to specification. See **TORQUE SPECIFICATIONS** . Install power steering pump bracket and pump. Connect A/C compressor hose assembly. Install cruise control servo and bracket.

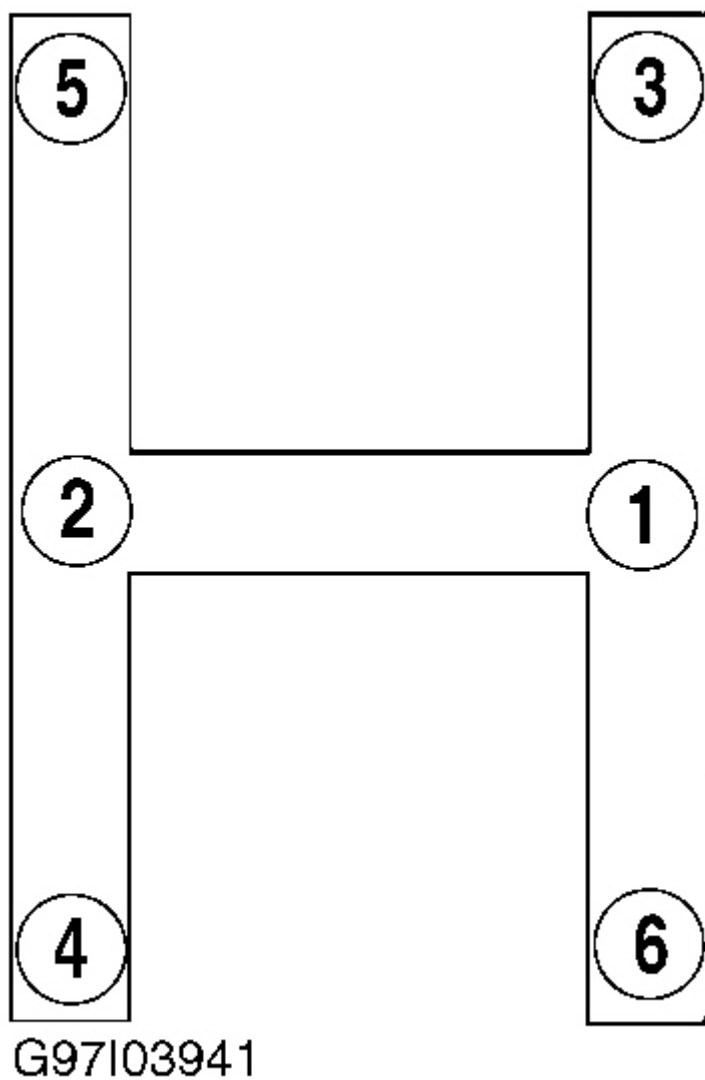
## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

5. Connect power steering pump. Connect hydraulic lines at gear-box, pump, hydro boost and reservoir. Install serpentine belt. Install/connect A/C accumulator and hoses. Install radiator. Install upper radiator hoses and cooler lines. Connect heater hoses. Install all vacuum hoses.
6. Install fan and fan clutch assembly. Install fan shroud and radiator filler panels. Install grille and headlamp bezels.
7. Install master cylinder and connect all fittings disconnected previously. Install hood latch and radiator braces. Install transmission and engine filler tubes. Install cruise control stepper motor cable, wiring and accelerator cable. Install plug wires.
8. Install air cleaner and ducts. Connect fuel lines at intake manifold. Install fuel line bracket and connect fuel lines at frame. Raise and support vehicle with safety stands.
9. Connect lower engine oil cooler line to radiator. Install power steering cooler and lines. Install lower transmission oil cooler line and lower radiator hose to radiator. Install front bumper. Connect drive shaft and transmission linkage. Torque all fasteners to specification. See **TORQUE SPECIFICATIONS** . Connect all fuel hoses. Install air bag sensor wiring. Install starter. Connect remaining wiring at engine and sub-frame.
10. Install torque converter bolts and cover. See **TORQUE SPECIFICATIONS** . Connect exhaust pipes and lower vehicle. Install oil filter and oil. Ensure oil level is correct. See **Crankcase Capacity** . Ensure transmission fluid level is correct. Fill and bleed power steering system. See **POWER STEERING BLEEDING** . Install air filter assembly. Install battery and negative battery cable. Install engine cover. Install right kick panel.
11. Install battery. Fill and bleed brake system. Install coolant as needed. See **COOLING SYSTEM BLEEDING** . Evacuate and charge A/C system. See appropriate article in REFRIGERANT RECOVERY/RECYCLING in A/C GENERAL SERVICING.
12. Check all components for leaks, proper fluid levels and proper operation.

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks



**Fig. 1: Tightening sub-frame mounting bolts in sequence (Astro & Safari).**  
Courtesy of GENERAL MOTORS CORP.

### Removal (Pickup, Sierra, & Tahoe)

1. Release fuel system pressure. See **FUEL PRESSURE RELEASE** . Remove hood. Remove air cleaner, accessory drive belt, fan and water pump pulley.
2. Drain cooling system. Remove fan shroud and radiator. Disconnect heater hoses from engine. Disconnect fuel lines, electrical connectors, vacuum hoses, coolant hoses and control cables as necessary. Discharge

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

A/C system (if equipped) using approved refrigerant recovery/recycling equipment. Remove A/C compressor and power steering pump with hoses attached and position aside (if equipped).

3. Mark and remove distributor. Raise and support vehicle. Drain crankcase. Disconnect exhaust pipes from manifolds. Disconnect strut rods. Remove flywheel cover. Remove starter. Remove torque converter bolts (A/T). Lower vehicle.
4. Support transmission. Attach engine hoist. Remove bellhousing bolts. Remove front engine mount-to-frame bolts. Remove engine.

### Installation

To install, reverse removal procedure. Fill crankcase and cooling system. Bleed cooling system. See **COOLING SYSTEM BLEEDING** . Evacuate and charge A/C system. Bleed power steering. See **POWER STEERING BLEEDING** . If necessary adjust shift cable. See **SHIFT CABLE ADJUSTMENT** . Tighten bolts to specification. See **TORQUE SPECIFICATIONS** table.

### Removal (Commercial Van)

1. Release fuel system pressure. See **FUEL PRESSURE RELEASE** . Drain crankcase and cooling system. Remove engine cover and floor panel sections.
2. Remove air cleaner, duct and exhaust heat stove pipe. Remove distributor cap and position aside. Disconnect all engine harness electrical connectors and position aside. Disconnect fuel lines from injection unit. Remove fuel line clamps from transmission and position fuel lines aside. Disconnect electrical connectors, vacuum hoses, coolant hoses and control cables as necessary.
3. Disconnect ground strap from rear end of left cylinder head. Disconnect all transmission harness electrical connectors and position harness aside. Remove transmission shifter (if necessary). Discharge A/C system (if equipped) using approved refrigerant recovery/recycling equipment. Remove A/C compressor. Remove upper radiator hose, all accessory drive belts, fan, fan pulley, fan shroud, lower radiator hose and radiator.
4. Remove engine oil filler tube. Remove clutch adjuster rod, return spring and pivot arm assembly (M/T). Disconnect exhaust pipes from manifolds. Disconnect battery cable from clamp on cylinder block. Disconnect drive shaft from transmission. Remove transmission mount.
5. Disconnect oil cooler lines from oil filter adapter and oil cooler line clamps from engine. Remove torque converter bolts. Attach engine hoist. Remove engine mount through-bolts. Remove engine.

### Installation

To install, reverse removal procedure. Fill crankcase and cooling system. Bleed cooling system. See **COOLING SYSTEM BLEEDING** . Evacuate and charge A/C system. Bleed power steering. See **POWER STEERING BLEEDING** . If necessary adjust shift cable. See **SHIFT CABLE ADJUSTMENT** . Tighten bolts to specification. See **TORQUE SPECIFICATIONS** table.

### Removal (Blazer, Bravada, Jimmy, Sonoma & Pickup)

**NOTE:**      **Notice:** If the engine is damaged internally and a new engine assembly is installed in the vehicle, ensure that all foreign material is flushed out of the cooling system. You must also flush out the oil cooler system. Failure to rid the

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

**oil cooler system of debris can result in engine damage.**

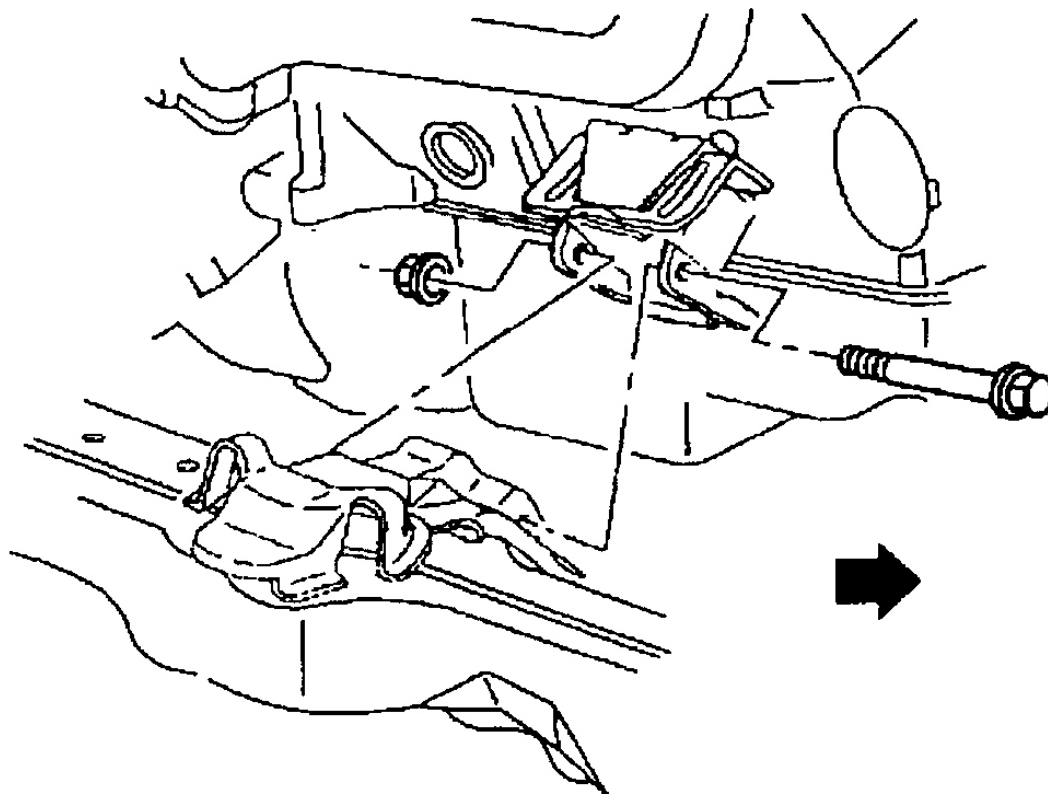
**NOTE: Tool Required: J-41427 Universal Lift Bracket.**

1. Release fuel system pressure. See **FUEL PRESSURE RELEASE** . Raise the vehicle.
2. Remove the underbody shield.
3. Remove the braces from the engine to the transmission.
4. Disconnect the exhaust pipe from the exhaust manifolds.
5. Disconnect the slave cylinder or hydraulic line if the cylinder is mounted inside the bellhousing.
6. Disconnect the fuel line clamp at the bellhousing.
7. Remove the starter.
8. Disconnect the torque convertor bolts from the flywheel.
9. Disconnect the front propeller shaft (4WD only).
10. Remove the oil filter.
11. Remove the transmission to engine bolts.
  - Remove all the transmission to engine bolts except for the upper left bolt.
  - For an automatic transmission refer to Transmission Replacement in Automatic Transmission.
  - For a manual transmission refer to Transmission Replacement in Manual Transmission.
12. Remove the front engine mount through bolts. See **Fig. 2** .
13. Remove the rear engine mount crossbar nut and washer. See **Fig. 3** .
14. Lower the vehicle.
15. Remove the battery ground cable at the engine.
16. Remove the water pump pulley.
17. Remove the air conditioning compressor and bracket.
18. Remove the radiator.
19. Disconnect the power steering hoses from the power steering gear and cap them.
20. Disconnect the heater hoses from the engine.
21. Disconnect the following items:
  - The wiring harnesses
  - The vacuum lines
  - The throttle cable
  - The fuel lines
22. Remove the distributor.
23. Support the transmission with a jack and remove the final transmission to engine bolt.
24. Install J-41427 to the right rear and the left front of the intake manifold. Tighten Retaining bolts to 15 N.m (11 lb. ft.). see **Fig. 4** .
25. Use an engine lifting device and remove the engine from the vehicle.



## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

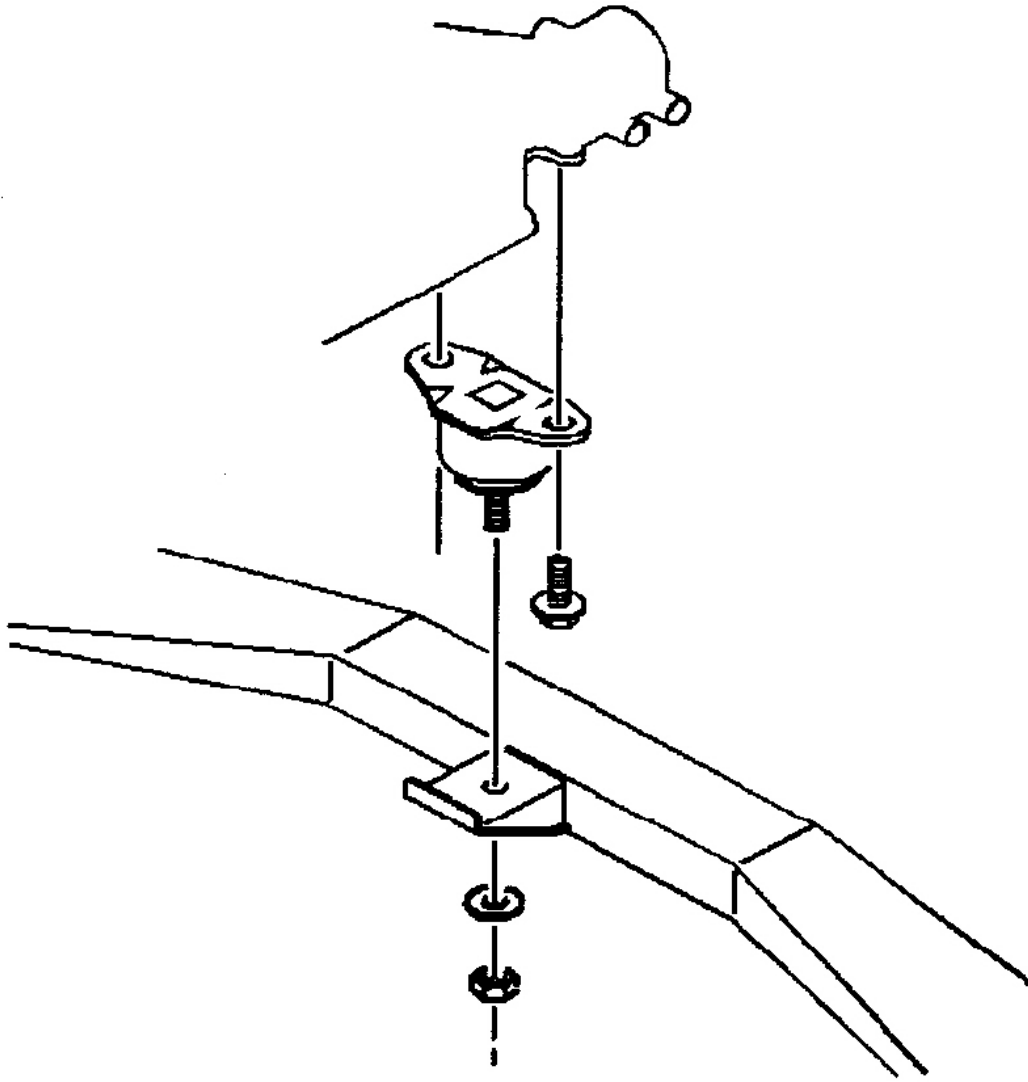


G00382496

**Fig. 2: Removing & Installing Engine Mount Through Bolt**

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

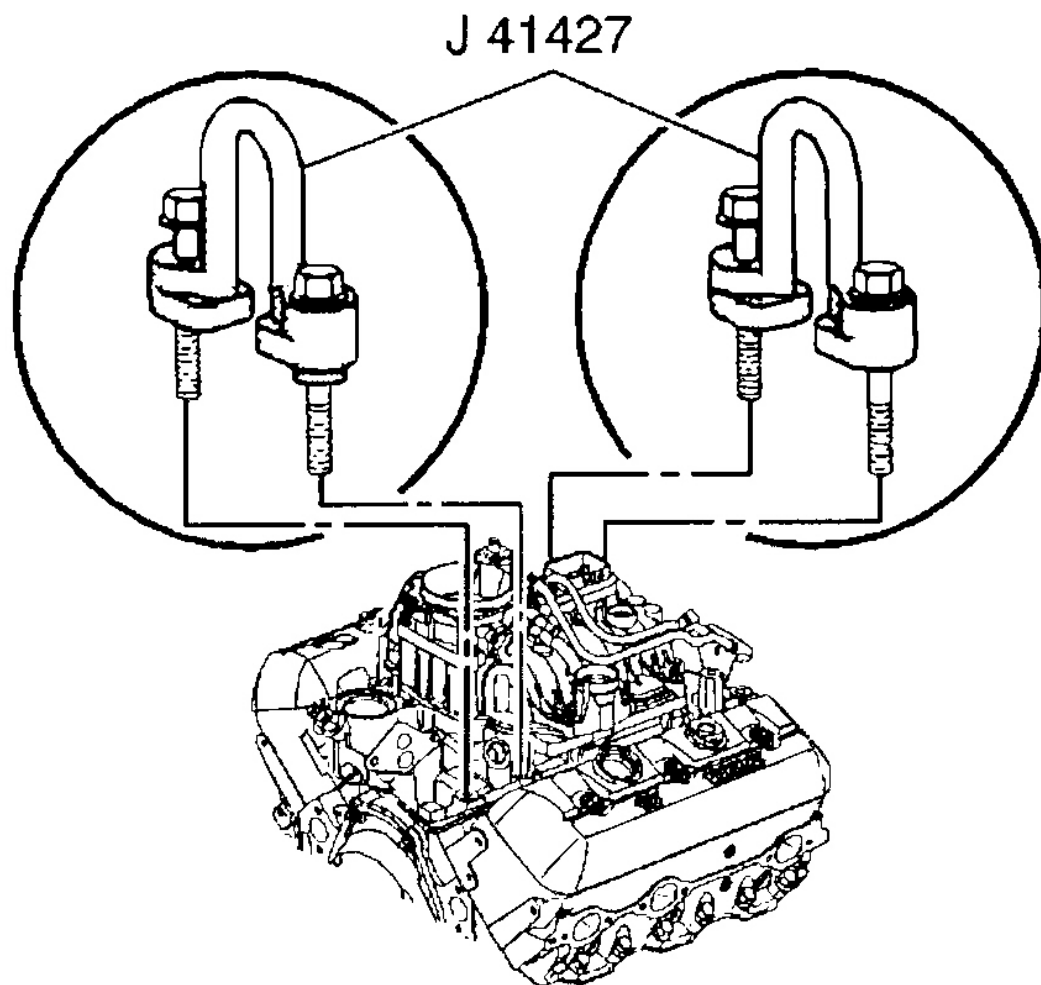


G00382497

**Fig. 3: Removing & Installing Crossbar Mount**

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks



G00382498

**Fig. 4: Installing J-41427 To Intake Manifold**

### Installation

1. Install the engine into the vehicle.
2. Install the left upper transmission to engine bolt.
3. Install the front engine mount through bolts and nuts:
  - Tighten the bolts to 66 N.m (49 lb ft).
  - Tighten the nuts to 56 N.m (41 lb ft).
4. Remove the universal lift brackets and install the intake manifold bolts.
5. Install the distributor.
6. Install the following items:

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

- The wiring harnesses
  - The vacuum lines
  - The throttle cable
  - The fuel lines
7. Connect the heater hoses to the engine.
  8. Install the power steering hoses.
  9. Install the radiator.
  10. Install the air conditioning compressor and bracket.
  11. Install the water pump pulley.
  12. Raise the vehicle.
  13. Install the battery ground cable at the engine.
  14. Install the remaining transmission to engine bolts.
    - For an automatic transmission refer to Transmission Replacement in Automatic Transmission.
    - For a manual transmission refer to Transmission Replacement in Manual Transmission.
  15. Install the rear engine mount crossbar nut and washer. Tighten the nut to 45 N.m (33 lb ft).
  16. Install the oil filter.
  17. Connect the torque convertor bolts to the flywheel.
  18. Install the front propeller shaft (4WD only).
  19. Install the starter.
  20. Connect the fuel line clamp at the bellhousing.
  21. Connect the slave cylinder or hydraulic line if the cylinder is mounted inside the bellhousing.
  22. Connect the exhaust pipe to the exhaust manifolds.
  23. Install the braces from the engine to the transmission.
  24. Install the underbody shield.
  25. Lower the vehicle.
  26. Fill the crankcase with oil.
  27. Connect the negative battery cable.

Fill cooling system. Bleed cooling system. See **COOLING SYSTEM BLEEDING** . Evacuate and charge A/C system. Bleed power steering. See **POWER STEERING BLEEDING** . If necessary adjust shift cable. See **SHIFT CABLE ADJUSTMENT** . Tighten bolts to specification. See **TORQUE SPECIFICATIONS** table.

### Removal (Express & Savana)

1. Release fuel system pressure. See **FUEL PRESSURE RELEASE** . Drain cooling system. Remove engine cover and air cleaner. Remove power steering fluid reservoir.
2. Remove upper fan shroud, fan, fan pulley, radiator and lower fan shroud. Remove engine coolant reservoir. Discharge A/C system (if equipped) using approved refrigerant recovery/recycling equipment. Remove A/C condenser. Remove A/C compressor and brace. Remove generator and bracket. Remove 2 ground straps. Remove cruise control servo (if equipped).

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

3. Disconnect fuel lines, electrical connectors, vacuum hoses, coolant hoses and control cables as necessary. Remove injection unit. Remove distributor cap with wires attached. Remove diverter valve assembly and pipe.
4. Remove ignition coil and manifold absolute pressure sensor. Remove upper half of engine oil dipstick tube. Remove engine oil filler tube. Remove headlight bezels, grille and upper radiator support (sheet metal cross panel support). Remove front bumper. Remove intake manifold. See **INTAKE MANIFOLD**.
5. Raise and support vehicle. Drain crankcase. Disconnect exhaust pipes from manifolds. Remove strut rods. Remove flywheel cover. Disconnect oil cooler lines from engine. Remove transmission shift cable. Remove starter, torque converter bolts (A/T) and engine mount through-bolts.
6. Lower vehicle. Attach engine hoist. Remove bellhousing bolts. Support transmission. Remove engine.

### Installation

To install, reverse removal procedure. Fill crankcase and cooling system. Bleed cooling system. See **COOLING SYSTEM BLEEDING**. Evacuate and charge A/C system. Bleed power steering. See **POWER STEERING BLEEDING**. If necessary, adjust shift cable. See **SHIFT CABLE ADJUSTMENT**. Tighten bolts to specification. See **TORQUE SPECIFICATIONS** table.

### INTAKE MANIFOLD (UPPER)

**CAUTION:** Always apply a few drops of clean engine oil to male fuel pipe ends before connecting fuel pipe fittings in order to reduce risk of fire and personal injury. This will also prevent a possible fuel leak. During normal operation, the "O" rings located in the female connector will swell, and may prevent proper reconnecting if not lubricated.

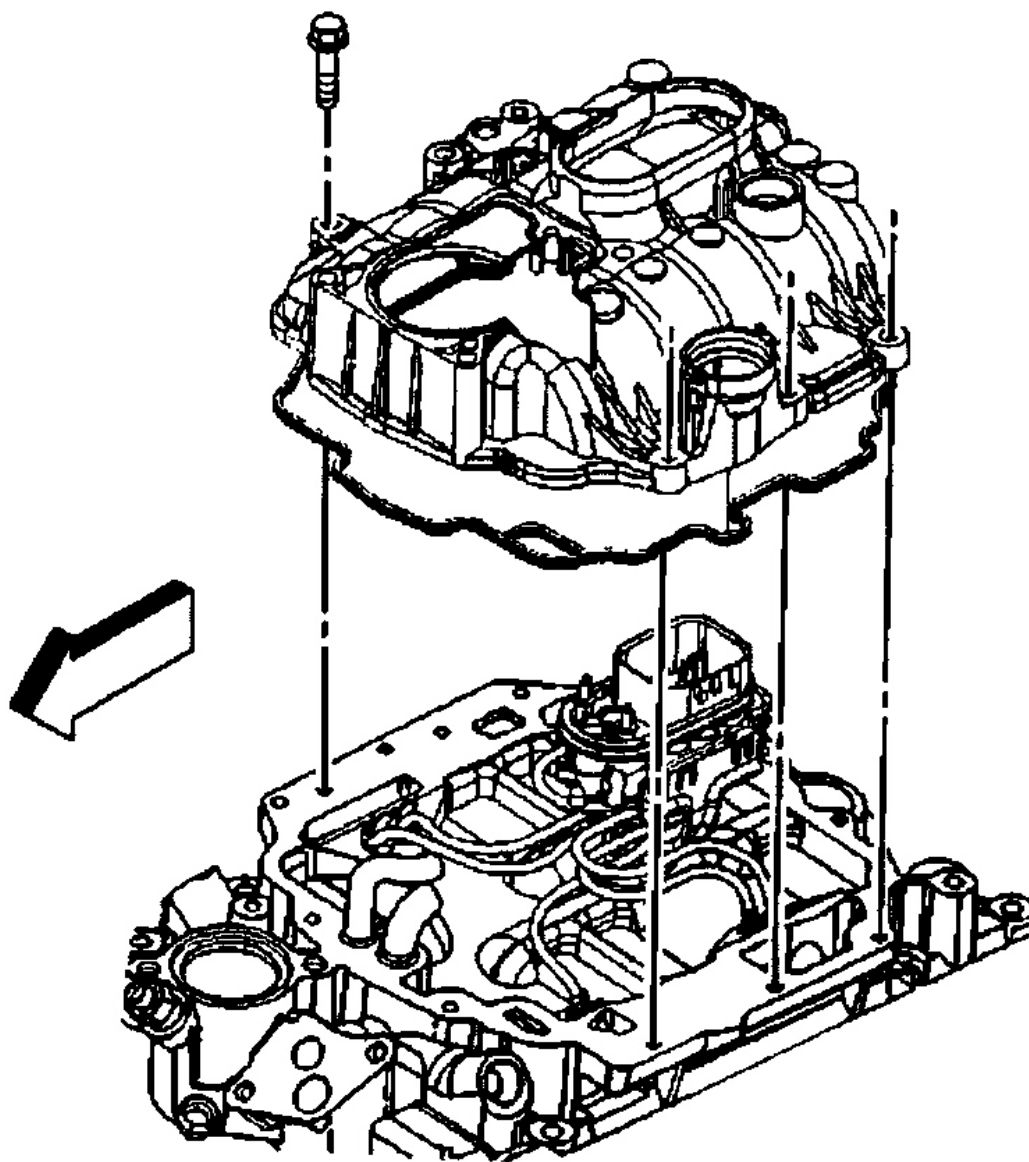
**NOTE:** Manufacturer does not provide a torque sequence for upper intake manifold.

### Removal

1. Remove negative battery terminal. Release fuel system pressure. See **FUEL PRESSURE RELEASE**. Remove air filter assembly and intake duct.
2. Remove wiring harness connectors and brackets and move to the side. Remove throttle and cruise control (if equipped) cable. Remove fuel lines and bracket at rear of lower intake manifold.
3. Remove brake booster vacuum hose and PCV hose at upper intake manifold. Remove ignition coil and bracket. Remove purge solenoid and bracket.
4. Remove upper intake manifold bolts and studs. Mark location of all studs for proper assembly. Remove upper intake manifold. See **Fig. 5**. Clean old pieces of gasket from all gasket surfaces. Inspect manifold for cracks, broken flanges, and damage to gasket surface.

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks



G00082769

**Fig. 5: Exploded View Of Intake Manifold Assembly (VIN W)**  
Courtesy of GENERAL MOTORS CORP.

### Installation

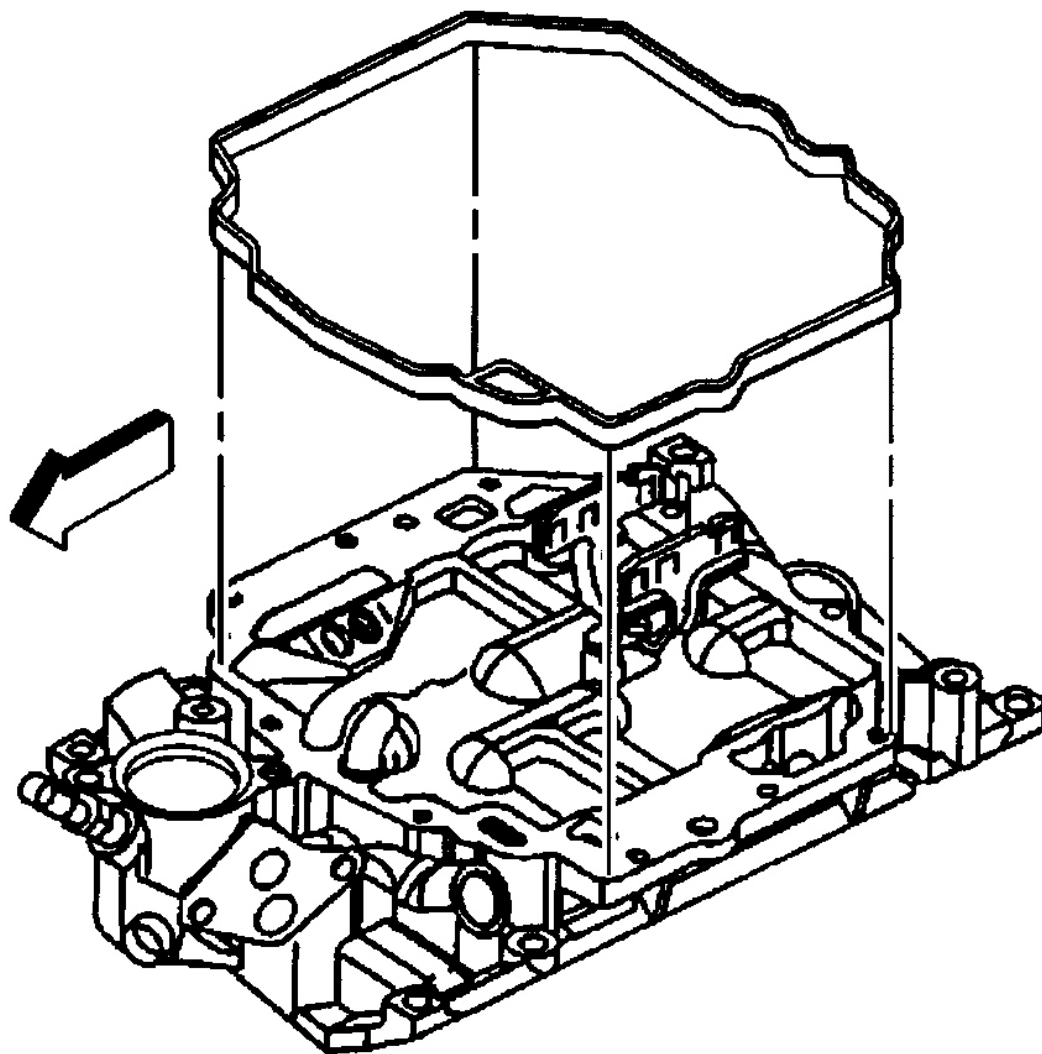
1. Install upper intake manifold gasket. See **Fig. 6** . Install upper intake manifold. DO NOT pinch injector lines between upper and lower intake manifolds.

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

**NOTE:**        **Tighten upper intake manifold bolts to specification in a criss-cross pattern. Manufacturer does not provide a specific torque sequence.**

2. Install the 2 corner studs first in order to help align the two halves. Install upper intake manifold bolts. Tighten first to 44 INCH lbs. (5 N.m) and then tighten to 89 INCH lbs. (10 N.m).
3. Install the purge solenoid and bracket. Install the ignition coil and bracket. Install the PCV hose at the upper intake manifold. Install the fuel lines and bracket at the rear of the lower intake manifold.
4. Install the throttle linkage and cruise control cable (if equipped). Install the wiring harness connectors and brackets.
5. Install the air filter assembly and intake duct. Connect the negative battery cable.



G00082770

**Fig. 6: Installing Upper Intake Manifold Gasket (VIN W)**  
Courtesy of GENERAL MOTORS CORP.

### INTAKE MANIFOLD (LOWER)

#### Removal

**NOTE:** Removing upper intake manifold is not necessary when removing lower intake manifold, they are removed as an assembly.

1. Remove distributor cap. Mark distributor rotor in relation to distributor housing. Mark base of distributor



## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

housing in relation to intake manifold. Remove distributor.

2. Drain cooling system. Disconnect upper radiator hose at thermostat housing. Disconnect water pump bypass hose and heater hose at intake manifold.
3. Remove EGR valve. Disconnect fuel lines at rear of lower intake manifold. Disconnect wiring harness.
4. Disconnect throttle cable and cruise control cable (if equipped). Unbolt throttle cable bracket from intake manifold. Move throttle cable bracket aside, with cables attached.
5. Unbolt transmission dipstick tube and remove/move aside as necessary. Remove PCV valve and disconnect vacuum hoses as necessary.
6. Remove serpentine belt. Unbolt A/C compressor/accessory bracketry and move aside as necessary to allow removal of intake manifold.
7. Remove lower intake manifold bolts, lower intake manifold and gaskets.

### Installation

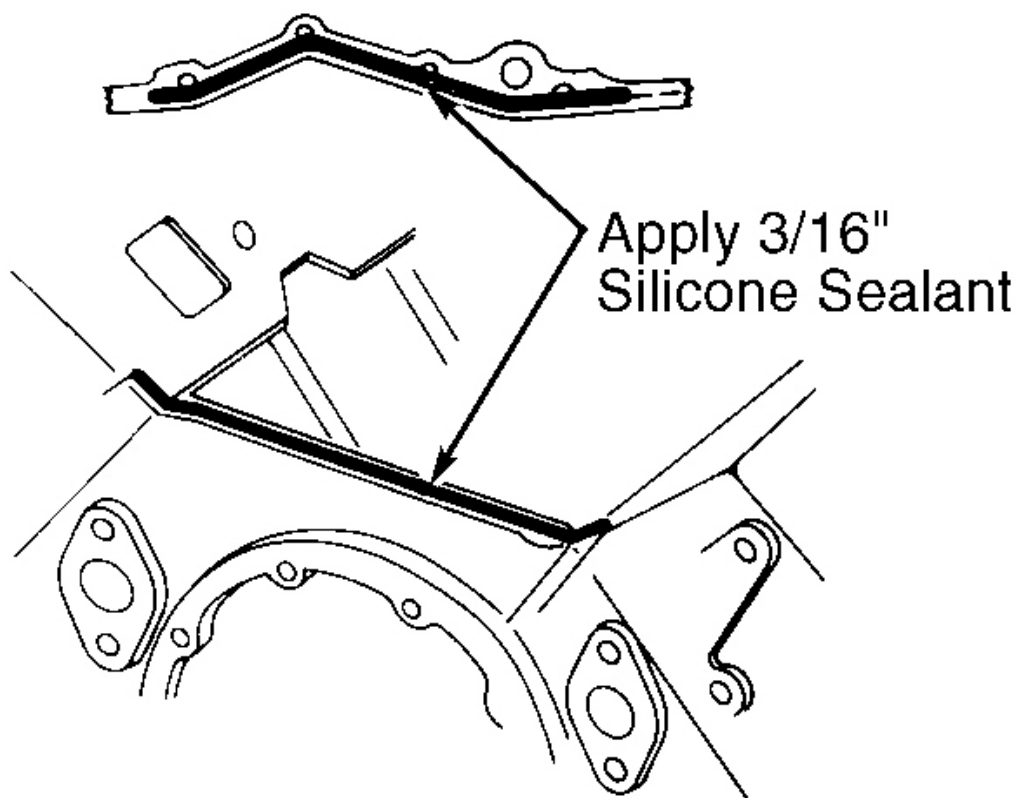
1. Apply a 3/16" (5 mm) bead of RTV (GM P/N 1052289) or equivalent to 4 sealing corners of block. Extend bead 1/2" (13 mm) up each cylinder head. See **Fig. 7** .
2. Apply Loctite(R) 242 (GM P/N 12345382) or equivalent to lower intake manifold bolt threads. Tighten bolts in sequence to specification. See **Fig. 8** . See **TORQUE SPECIFICATIONS** table.

**CAUTION: Always use NEW "O" rings when reconnecting fuel lines at rear of engine.**

3. To complete installation, reverse removal procedure. Fill and bleed cooling system. See **COOLING SYSTEM BLEEDING** .

**1997 Chevrolet S10 Pickup**

1996-97 ENGINES 4.3L V6 - Trucks

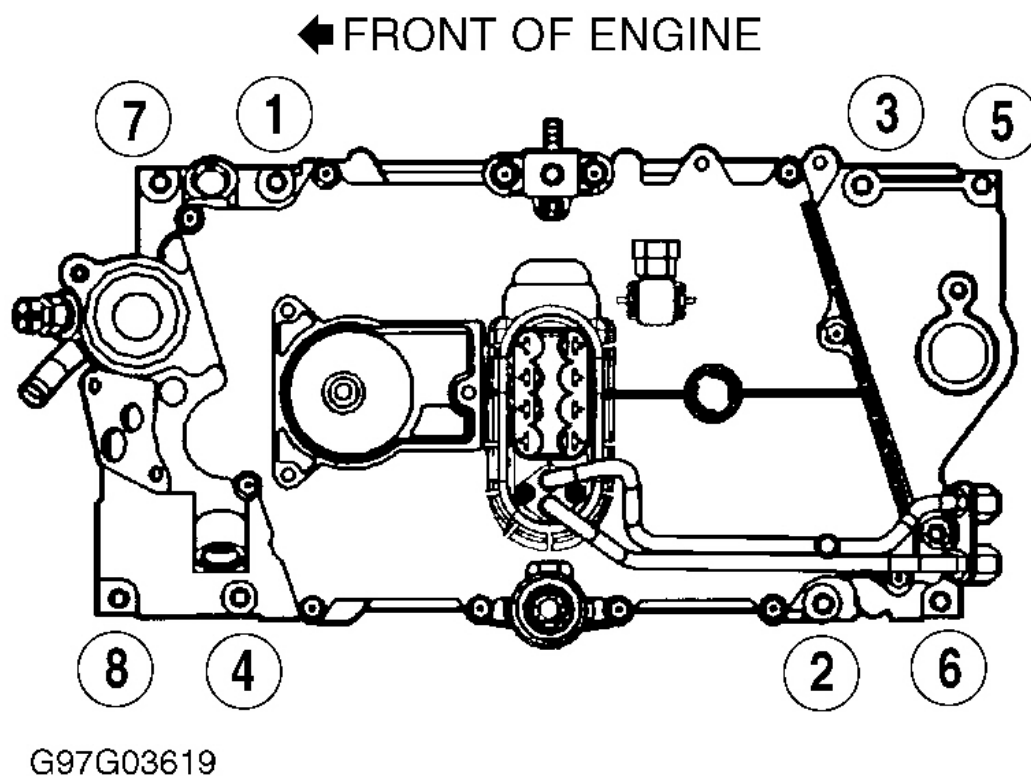


G95I27050

**Fig. 7: Applying RTV Sealant Before Installing Intake Manifold**  
Courtesy of GENERAL MOTORS CORP.

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks



**Fig. 8: Lower Intake Manifold Bolt Tightening Sequence**  
Courtesy of GENERAL MOTORS CORP.

### EXHAUST MANIFOLD

#### Removal

Remove engine cover or floor panel. Remove negative battery cable. Remove oil level indicator tube and EGR inlet pipe. Remove spark plugs and spark plug heat shields. Remove exhaust pipe at manifold. Remove exhaust manifold bolts and exhaust manifold.

#### Installation

Install manifold. Tighten bolts to specification. See **TORQUE SPECIFICATIONS** table. To complete installation, reverse removal procedure.

### CYLINDER HEAD

#### Removal

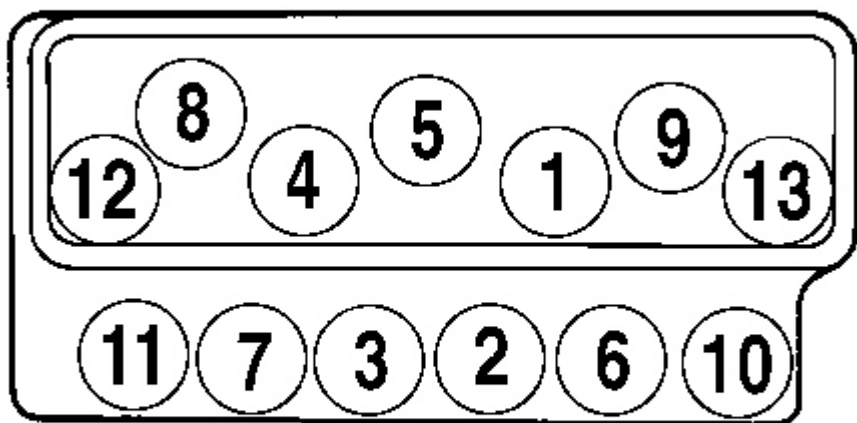
## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

Remove negative battery cable. Remove engine cover or floor panel. Remove intake manifold. See appropriate **INTAKE MANIFOLD** . Discharge A/C system (if equipped) using approved refrigerant recovery/recycling equipment and remove A/C compressor and bracket (if equipped). Remove generator and brackets. Remove spark plugs.

### Installation

1. Clean gasket surfaces, bolt threads and bolt holes. If using steel head gasket, thinly coat both sides of gasket with sealant. DO NOT apply sealant to composite (steel/asbestos) head gaskets. Position head gasket on cylinder block. Ensure all holes align. Coat head bolt threads with GM Sealant (1052080).
2. Install cylinder head with bolts finger-tight. Tighten head bolts in sequence to specification. See **Fig. 9** . See **TORQUE SPECIFICATIONS** table. Lubricate valve tip, rocker arm pivot and push rod socket with Molykote.
3. To complete installation, reverse removal procedure. Adjust valves. See **VALVE CLEARANCE ADJUSTMENT** under ADJUSTMENTS.



G95B27053

**Fig. 9: Cylinder Head Bolt Tightening Sequence**  
Courtesy of GENERAL MOTORS CORP.

### ROCKER ARMS & PUSHRODS

#### Removal

Remove negative battery cable. On Commercial Van, remove engine cover of floor panel. Remove PCV valve and tube. Remove EGR inlet tube. Remove purge solenoid and spark plug wires. Remove valve cover. Remove

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

rocker arm bolts. If pushrods are to be replaced only, back off valve rocker arm bolts until valve rocker arm can be swung away from pushrod and remove pushrod.

### Installation

Coat bearing surfaces with High Viscosity Oil/Zinc (GM P/N 12345501). Valve cover gaskets are reusable. Replace gaskets only if damaged. Tighten to specification. See **TORQUE SPECIFICATIONS** table. To install remaining components, reverse removal procedure.

## FRONT COVER OIL SEAL

### Removal

1. Remove negative battery cable. If equipped, remove engine cover or floor pan. Remove upper fan shroud. Remove engine cooling fan. Remove accessory drive belt(s) and water pump pulley.
2. Raise and support vehicle. Remove lower fan shroud. Remove crankshaft balancer bolt. Remove crankshaft pulley bolts and crankshaft pulley.
3. Using Damper Puller/Installer (J-23523-F), remove crankshaft balancer. Carefully pry oil seal from front cover.

### Installation

1. Coat crankshaft front cover oil seal lips with clean engine oil. Using Seal Installer (J-35468), install NEW seal in front cover with seal lip facing engine. Apply RTV sealant to Woodruff keyway in crankshaft balancer.
2. Using Damper Puller/Installer (J-23523-F), install crankshaft balancer. Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** table. To install remaining components, reverse removal procedure.

## FRONT COVER

### Removal

**NOTE:**        **DO NOT reinstall original composite front cover. Always install a NEW front cover. Reinstalling original front cover can lead to oil leaks.**

1. Remove negative battery cable. If equipped, remove engine cover or floor pan. Remove upper fan shroud. Remove engine cooling fan. Remove accessory drive belt(s) and water pump pulley.
2. Raise and support vehicle. Remove lower fan shroud. Remove crankshaft balancer bolt. Remove crankshaft pulley bolts and crankshaft pulley.
3. Using Damper Puller/Installer (J-23523-F), remove crankshaft balancer. Remove water pump. See **WATER PUMP**.
4. Disconnect Crankshaft Position (CKP) sensor harness connector. Remove CKP sensor bolt and CKP sensor. Loosen or remove oil pan as necessary for removal of front cover.
5. Remove front cover bolts, front cover and gasket.

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

### Installation

1. Install NEW front cover and gasket. Tighten front cover bolts to specification. See **TORQUE SPECIFICATIONS** .

**CAUTION: Ensure CKP sensor is fully seated and held stationary in bore of front cover upon installation. A CKP sensor that is not fully seated may result in erratic engine operation.**

2. Install CKP sensor. Tighten CKP sensor holddown bolt to specification. See **TORQUE SPECIFICATIONS** .
3. Apply RTV sealant to Woodruff keyway in crankshaft damper. Install crankshaft damper using Damper Puller/Installer (J-23523-F). Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** . To complete installation, reverse removal procedure.

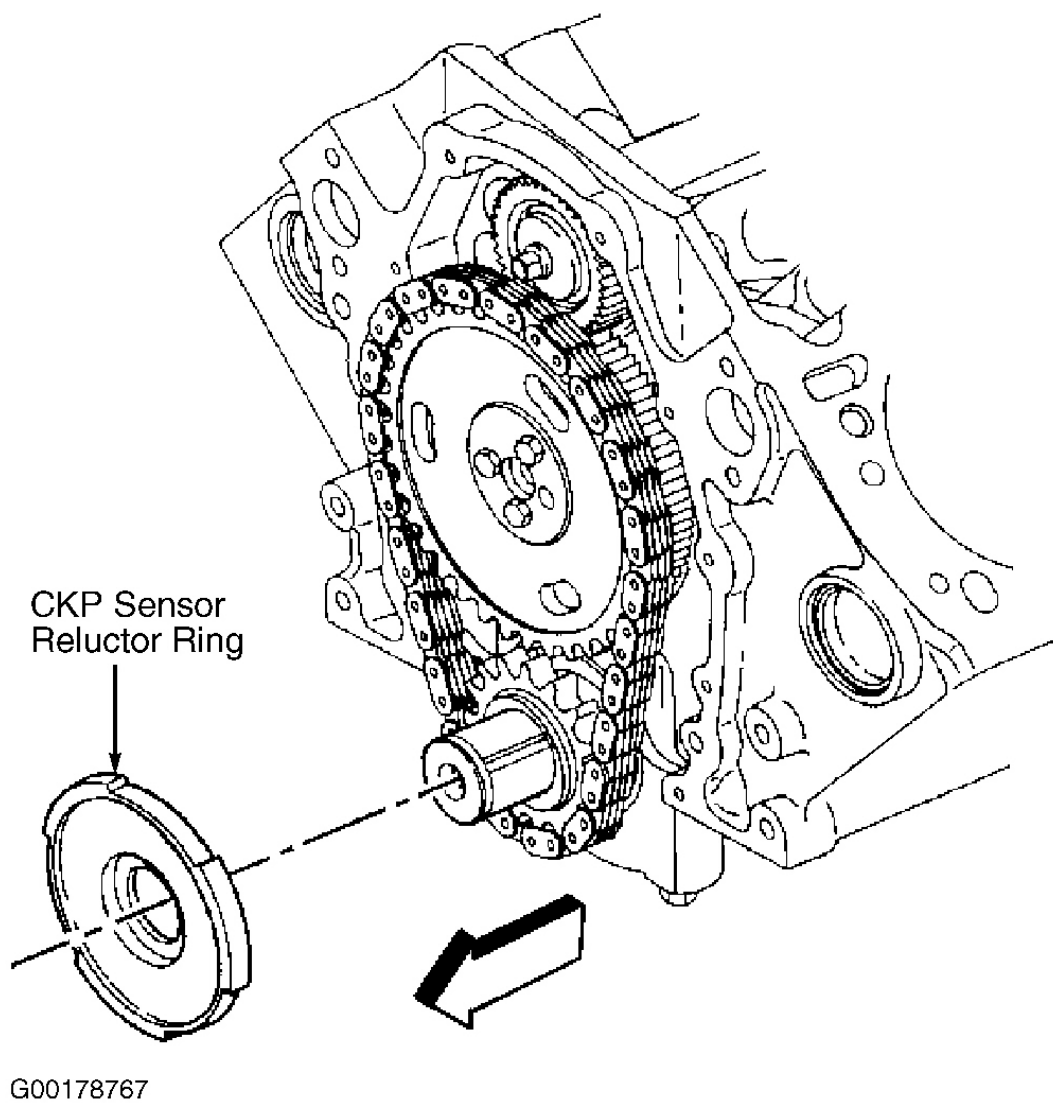
### TIMING CHAIN & SPROCKETS

#### Removal

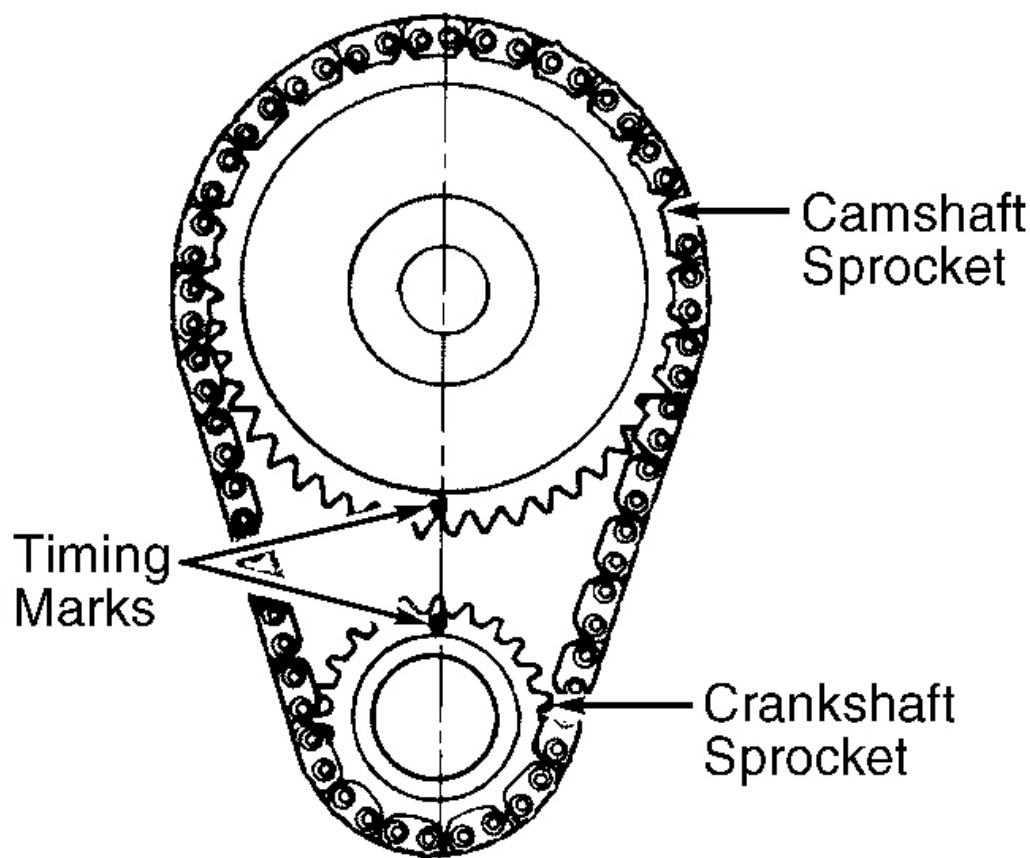
1. Remove front cover. See **FRONT COVER** .
2. Remove CKP sensor reluctor ring. See **Fig. 10** . Rotate crankshaft until timing marks on camshaft and crankshaft sprockets are aligned. See **Fig. 11** . Remove camshaft sprocket and timing chain. To remove crankshaft sprocket, use Sprocket Puller (J-5825-A).

**1997 Chevrolet S10 Pickup**

1996-97 ENGINES 4.3L V6 - Trucks



**Fig. 10: Removing/Installing CKP Sensor Reluctor Ring**  
Courtesy of GENERAL MOTORS CORP.



G95E27056

**Fig. 11: Aligning Timing Marks**

Courtesy of GENERAL MOTORS CORP.

#### Installation

1. Install Woodruff key in crankshaft (if removed). Using Crankshaft Sprocket Installer (J-5590), install crankshaft sprocket. Install camshaft sprocket and timing chain. Ensure timing marks on sprockets are aligned. See **Fig. 11** .
2. Balance shaft drive gear, driven gear and gear bolt are serviced as a set. Install and tighten camshaft sprocket bolts to specification. See **TORQUE SPECIFICATIONS** .

**CAUTION:** Failure to properly align CKP sensor reluctor ring may result in component damage and could affect system performance. CKP sensor reluctor ring is shaped like a dish. Dished side of CKP reluctor ring must face engine front cover.



## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

**NOTE:**        **DO NOT** reinstall original composite front cover. Always install a **NEW** front cover. Reinstalling original front cover can lead to oil leaks.

3. Install and align CKP sensor reluctor ring. See **Fig. 10** . Install NEW front cover and gasket. Tighten front cover bolts to specification.

**CAUTION:** Ensure CKP sensor is fully seated and held stationary in bore of front cover upon installation. A CKP sensor that is not fully seated may result in erratic engine operation.

4. Install CKP sensor. Tighten CKP sensor holddown bolt to specification. See **TORQUE SPECIFICATIONS** .
5. Apply RTV sealant to Woodruff keyway in crankshaft damper. Using Damper Puller/Installer (J-23523-F), install crankshaft balancer. Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** . To complete installation, reverse removal procedure.

## ROCKER ARM STUDS

### Removal & Installation

**CAUTION:** On models equipped with press in rocker arm studs, ream stud bore before installing oversize rocker arm stud, or cylinder head may be damaged.

Unscrew rocker arm stud from cylinder head. To install, insert NEW rocker arm stud. Tighten to 35 ft. lbs. (47 N.m).

## VALVE LIFTERS

### Removal

Remove upper and lower intake manifold. See **INTAKE MANIFOLD (UPPER)** and **INTAKE MANIFOLD (LOWER)** . Remove valve covers. Remove push rods. See **ROCKER ARMS & PUSH RODS** . Remove stuck valve lifter using Valve Lifter Remover (J-9290-01).

### Installation

Coat lifter base or roller (if equipped) and body with High Viscosity Oil/Zinc (12345501) or equivalent. Install lifters in original location. To complete installation, reverse removal procedure. Replace oil and filter, and add High Viscosity Oil/Zinc (GM P/N 12345501) or equivalent.

## CAMSHAFT

### Removal

Remove front cover. See **FRONT COVER** . Remove timing chain and sprockets. See **TIMING CHAIN &**

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

**SPROCKETS** . Install three 5/16" X 18 bolts (4-5 inches long) into camshaft threaded holes. Use bolts to remove and install camshaft.

### Installation

Coat camshaft lobes and bearing journals with High Viscosity Oil/Zinc (12345501). Ensure bearing oil holes align with oil holes in block. On engines where oil holes are difficult to see, use a piece of 3/32" rod to check alignment. Install outer camshaft bearing first. Install camshaft. To complete installation, reverse removal procedure.

### BALANCE SHAFT (IF EQUIPPED)

#### Removal

1. Remove radiator. Discharge A/C system (if equipped) using approved refrigerant recovery/recycling equipment and remove A/C condenser (if equipped) and grille. Remove valve lifters. See **VALVE LIFTERS** .
2. Remove timing chain and camshaft sprocket. See **TIMING CHAIN & SPROCKETS** . Remove balance shaft gears. Remove balance shaft retainer plate.

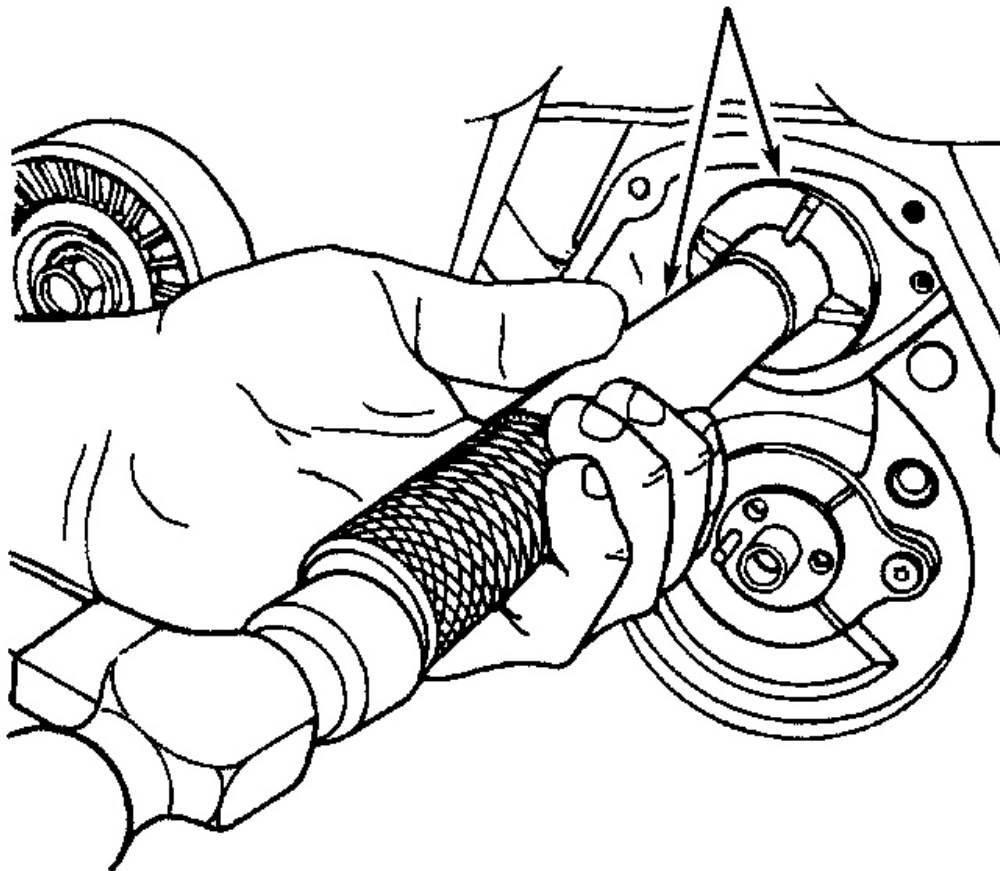
**NOTE:**        **Front bearing is removed with balance shaft. Replace front bearing and balance shaft as a set only. Replace balance shaft timing gears as a set only.**

3. Remove intake manifold. See **INTAKE MANIFOLD** . Using a soft-faced hammer, tap balance shaft out toward front of engine.

#### Installation

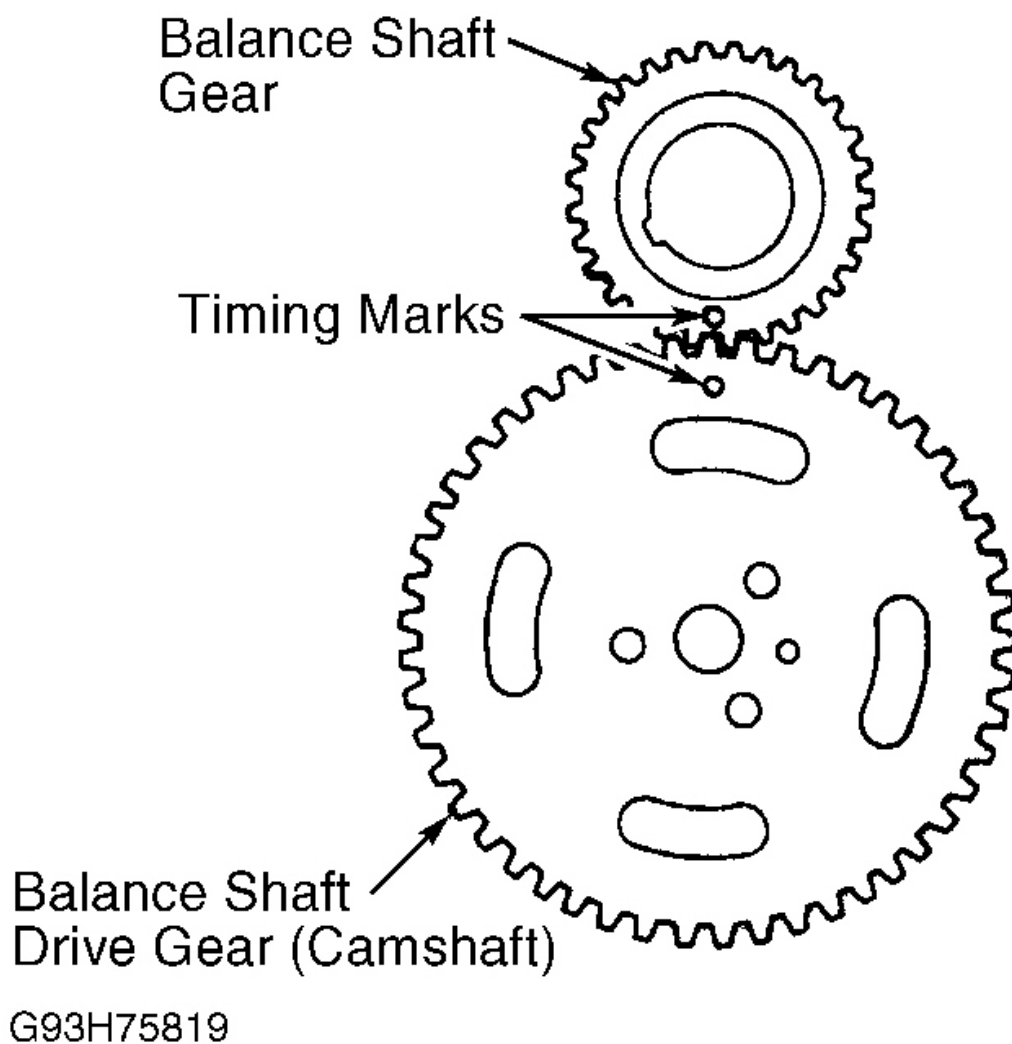
1. Apply oil to balance shaft bearings. Using Installers (J-36996 and J-8092), install balance shaft in block. See **Fig. 12** . Install lifter retainer (if equipped). Ensure balance shaft turns.
2. Install thrust plate. Install balance shaft gears. Ensure timing marks on balance shaft gears are aligned. See **Fig. 13** . Install balance shaft timing gear bolt. Tighten bolt to 15 ft. lbs. (20 N.m), then tighten bolt an additional 35 degrees. To complete installation, reverse removal procedure.

## Balance Shaft Installers



G93G75818

**Fig. 12: Installing Balance Shaft**  
Courtesy of GENERAL MOTORS CORP.



**Fig. 13: Aligning Timing Marks For Balance Shaft Gears**  
Courtesy of GENERAL MOTORS CORP.

## REAR CRANKSHAFT OIL SEAL

### Removal

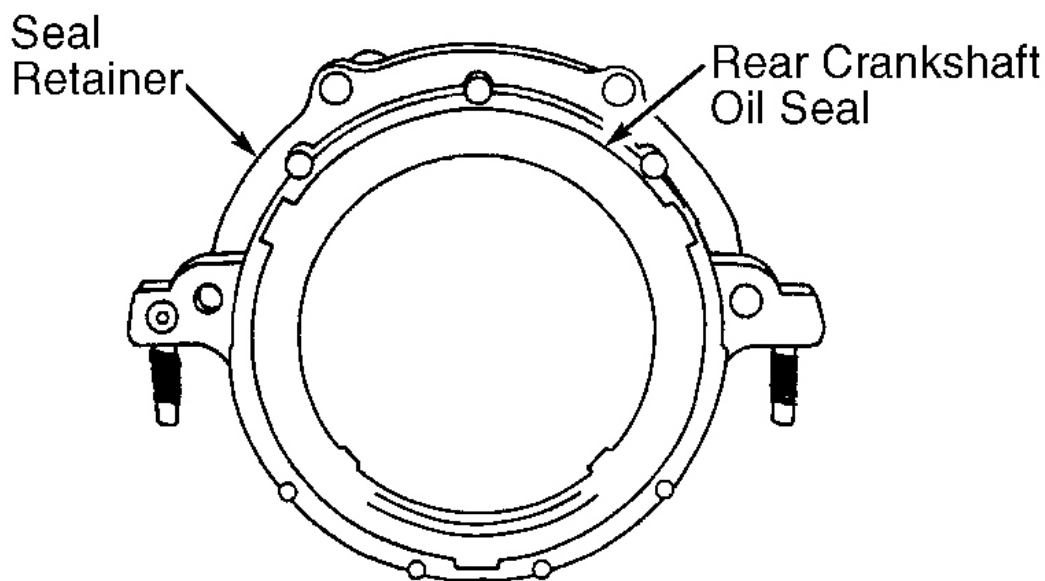
Remove transmission, clutch (M/T) and flywheel. See appropriate **TRANSMISSION REMOVAL & INSTALLATION** article in TRANSMISSION SERVICING. Pry seal from housing.

### Installation

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

1. Lubricate inner and outer diameter of seal with engine oil. Place seal on Seal Installer (J-35621). Position seal against crankshaft as indicated in illustration. See **Fig. 14**.
2. Thread attaching screws into crankshaft flange and tighten with screwdriver. This squares seal with crankshaft. Rotate seal installer handle until it bottoms. Remove seal installer. Install flywheel, clutch (M/T) and transmission.



G97I03615

**Fig. 14: Installation Position Of Rear Crankshaft Oil Seal.**

Courtesy of GENERAL MOTORS CORP.

### WATER PUMP

**NOTE:** DO NOT immerse water pump in solvent. Solvent may cause premature bearing failure.

#### Removal

Disconnect battery. Drain cooling system. Remove all drive belts, coolant hoses and mounting brackets attached to water pump. If necessary, remove fan shroud. Remove fan and pulley. Remove water pump and gaskets.

#### Installation

Install water pump with NEW gaskets. Tighten water pump bolts to specification. See **TORQUE SPECIFICATIONS** table. To complete installation, reverse removal procedure.

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

### OIL PAN

**CAUTION:** Minimal clearance exists between oil pump pick-up tube and bottom of oil pan. **DO NOT** place jack under oil pan, crankshaft pulley or any sheet metal when lifting engine.

#### Removal (Except "S" & "T" Series)

1. Disconnect battery. Raise and support vehicle. Drain crankcase. Remove exhaust crossover pipe, strut rods, strut rod brackets and flywheel cover.
2. Remove starter. Remove or disconnect engine oil cooler lines and/or transmission fluid lines as necessary. Remove oil pan bolts, oil pan and gasket.

#### Removal ("S" Series Pickup, Jimmy & Sonoma 2WD)

Raise and support vehicle. Drain crankcase. Remove engine. See **ENGINE** . Remove oil pan bolts, oil pan and gasket.

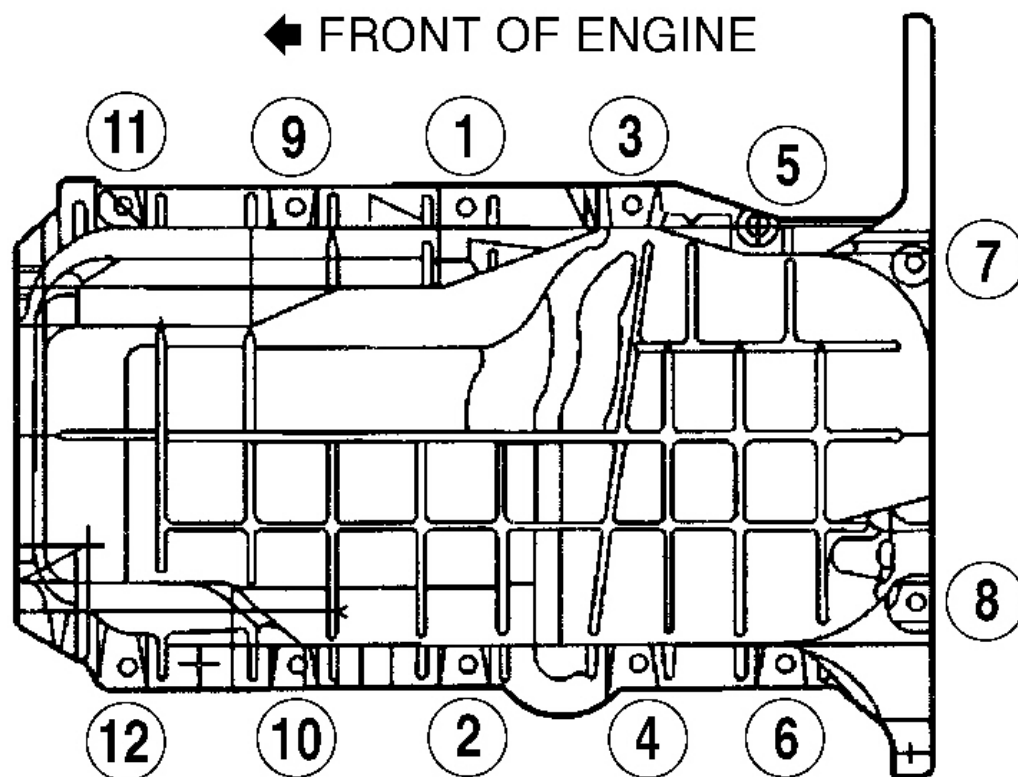
#### Removal ("T" Series Pickup, Jimmy & Sonoma 4WD)

1. Disconnect battery. Remove engine oil dipstick and accessory drive belt splash shield. Raise and support vehicle. Drain crankcase. Remove front axle shield and transfer case shield. Remove brake line clips from crossmember.
2. Remove second crossmember. Remove converter hanger bolts and exhaust pipe clamp from converter. Disconnect exhaust pipes from manifolds. Slide exhaust pipe rearward. Disconnect front drive shaft from differential.
3. Remove flywheel cover. Remove starter motor. Remove idler arm-to-frame bolts. Remove differential housing mounting bolts from bracket (right side) and frame (left side).
4. Move differential housing forward. Remove front engine mount through-bolts. Raise and support engine. Remove oil pan bolts, oil pan and gasket.

### Installation

**NOTE:** If transmission and oil pans are removed at same time, transmission pan must be installed before oil pan.

1. Apply RTV sealant to front cover-to-cylinder block junction and rear main bearing-to-cylinder block junction.
2. Using feeler gauge check clearance between 3 oil pan-to-transmission contact points. If clearance exceeds .0100" (.025 mm) at any of 3 points, repeat installation steps until clearance is within specification. See **Fig. 15** . Install oil pan. Tighten oil pan bolts to specification. See **TORQUE SPECIFICATIONS** table. To complete installation, reverse removal procedure. Fill crankcase.



G97A03616

**Fig. 15: Oil Pan Bolt Tightening Sequence.**  
Courtesy of GENERAL MOTORS CORP.

## OVERHAUL

### CYLINDER HEAD

#### Valve Springs

1. Measure valve spring free length, installed height and pressure (tension). Replace valve spring if measurement is not within specification. See **VALVES & VALVE SPRINGS** table under ENGINE SPECIFICATIONS.
2. Measure installed height between cylinder head spring seat (or top of shim, if shimmed) and top of spring shield. If installed height exceeds specification, install shims as necessary to bring installed height to specification.

#### Valve Stem Oil Seals

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

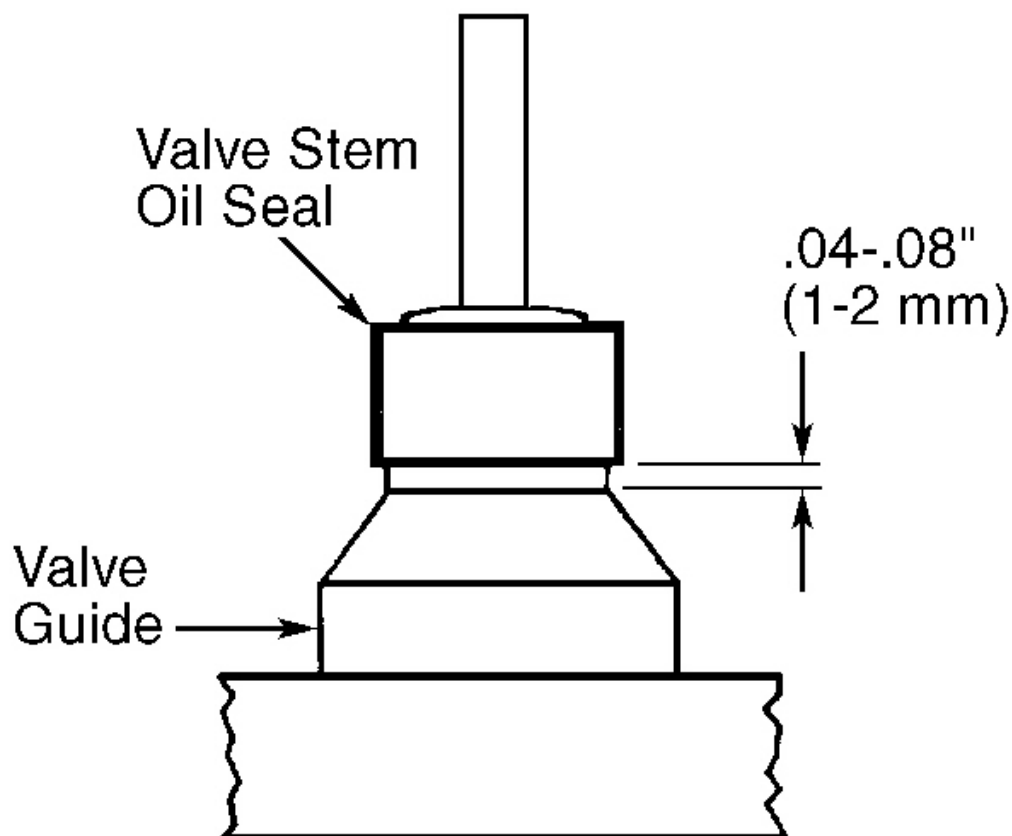
1. Intake valve uses upper "O" ring seal and lower umbrella seal; exhaust valve uses upper "O" ring seal.
2. When installing umbrella seal, seat seal against valve guide boss on cylinder head. If equipped, coat upper "O" ring seal with engine oil before installation and ensure seal is not twisted when installed. A gap of .040-.080" (1-2 mm) must exist between edge of oil seal and valve guide. See **Fig. 16**.

### Valve Guides

Valve guides are part of cylinder head (not replaceable). Measure valve guide oil clearance. See **CYLINDER HEAD** table under ENGINE SPECIFICATIONS. If not within specification, ream valve guide and install valves with oversize stems.

### Valves

Replace valve if margin is less than .031" (.8 mm).



G97C03617



**Fig. 16: Installation Of Valve Stem Oil Seal**

Courtesy of GENERAL MOTORS CORP.

**VALVE TRAIN****Rocker Arm Assembly**

Clean push rods, rocker arms, balls and nuts with solvent and blow dry. Inspect rocker arms and balls at mating surface. Surface should be smooth and free of damage. Inspect push rods for bends or wear. Ensure oil passages are clear.

**CYLINDER BLOCK ASSEMBLY****Piston & Rod Assembly**

1. Mark piston in relation to cylinder bore before removal. Piston pin is press-fit in connecting rod. Mark piston in relation to connecting rod before separating components.
2. Replace piston and piston pin as matched set. Install piston in bore with notch on top of piston toward front of engine.

**Fitting Pistons**

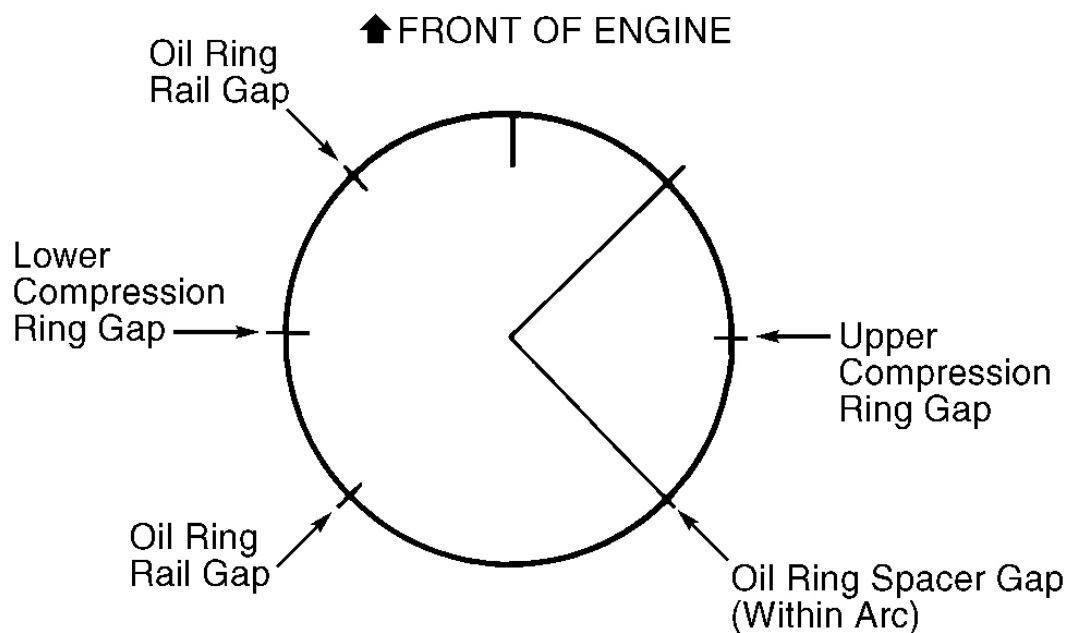
1. Measure piston diameter at 90-degree angle to piston pin, on piston pin center line. Measure cylinder bore diameter 2 1/2" below cylinder block deck. Determine piston clearance.
2. If piston clearance is not within specification, replace piston and/or machine cylinder bore as necessary. See **CYLINDER BLOCK** and **PISTONS, PINS & RINGS** tables under ENGINE SPECIFICATIONS.

**Piston Rings**

Measure piston ring end gap and side clearance. If measurement is not within specification, replace piston and/or rings as necessary. See **PISTONS, PINS & RINGS** table under ENGINE SPECIFICATIONS. Install rings with mark on ring facing upward. Position ring end gaps around circumference of piston as shown. See **Fig. 17** .

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks



G95F27057

**Fig. 17: Positioning Piston Ring End Gaps**  
Courtesy of GENERAL MOTORS CORP.

### Rod Bearings

1. Measure rod bearing journal out-of-round, taper and oil clearance. If measurement is not within specification, replace rod bearings and/or machine crankshaft. See **CRANKSHAFT, MAIN & CONNECTING ROD BEARINGS** table under ENGINE SPECIFICATIONS.
2. Ensure rod side play is within specification. See **CONNECTING RODS** table under ENGINE SPECIFICATIONS.

### Crankshaft & Main Bearings

1. Mark bearing caps for reassembly. Measure journal diameter, out-of-round, taper and oil clearance. If measurement is not within specification, replace main bearings and/or machine crankshaft. See **CRANKSHAFT, MAIN & CONNECTING ROD BEARINGS** table under ENGINE SPECIFICATIONS.
2. Align thrust bearing surfaces, and measure crankshaft end play. See **THRUST BEARING** . Main bearing caps are press fit. Using Tool (J-6125-B and J-41348), carefully remove caps for service. Install main bearings and main caps. Tap bearing caps into cylinder block cavity using a brass, lead, or leather mallet before installing attaching bolts.
3. DO NOT use cap bolts to pull crankshaft bearing caps into seats. Tighten NEW main cap bolts evenly.

### Thrust Bearing

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

**CAUTION:** On some 4.3L engines, the distance between rear main bearing thrust faces is .008" (.20 mm) wider than standard (identified by .008" stamped on crankshaft rear counterweight). When replacing rear main bearings on these engines, use only .008" (.20 mm) wider bearings.

1. Install main bearing caps (except rear), and tighten cap bolts to specification. See **TORQUE SPECIFICATIONS** table. Install rear main bearing cap and tighten cap bolts to 10 ft. lbs. (14 N.m).
2. Tap crankshaft rearward then forward to align thrust surfaces. Tighten rear main bearing cap bolts to specification. Measure crankshaft end play at forward thrust surface of rear main bearing cap. See **CRANKSHAFT, MAIN & CONNECTING ROD BEARINGS** table under **ENGINE SPECIFICATIONS** .

### Cylinder Block

Measure cylinder bore out-of-round and taper. If measurement is not within specification, machine cylinder bore and/or replace piston. See **CYLINDER BLOCK** table under ENGINE SPECIFICATIONS. Finish bore with a 45-65 degree cross-hatch pattern.

## ENGINE OILING

### ENGINE LUBRICATION SYSTEM

Gear-type oil pump delivers full pressure lubrication through full-flow oil filter to main oil gallery. Main oil gallery feeds crankshaft and camshaft bearings through drilled passages in block.

Valve lifter oil gallery feeds valve lifters. From lifters, oil is routed through hollow push rods to upper valve train components. Timing chain and sprockets are lubricated by oil drainage from No. 1 camshaft bearing. Pistons and piston pins are lubricated by oil splash. Non-adjustable oil pressure regulator is located in oil pump body.

### Crankcase Capacity

Crankcase capacity is 4.5 qts (4.26L), including oil filter.

### Oil Pressure

Measure oil pressure with engine at operating temperature and specified RPM. See **OIL PRESSURE SPECIFICATIONS** table.

### OIL PRESSURE SPECIFICATIONS <sup>(1)</sup>

Application	psi (kg/cm <sup>2</sup> )
1000 RPM	6 (0.4)
2000 RPM	18 (1.3)
4000 RPM	24 (1.7)

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

(1) Minimum specification.

### OIL PUMP

#### Removal & Disassembly

**NOTE:** Pick-up tube is serviceable; however, unless tube is damaged, DO NOT remove tube from pump body.

1. Remove oil pan. See **OIL PAN** under REMOVAL & INSTALLATION. Remove oil pump bolt. Remove pump and extension shaft. If necessary, remove pick-up tube.
2. Remove pump cover. Mark relationship between gears at a meshing point for reassembly. Remove gears. Remove pressure regulator valve retaining pin. Remove pressure regulator valve and spring. Remove oil pump-to-rear crankshaft bearing cap bolt. Remove oil pump, retainer and driveshaft from rear crankshaft bearing cap.

#### Inspection

Inspect pump body and cover for cracks or excessive wear. Inspect pump gears for damage or wear. Check drive gear shaft for looseness in pump body. Check pressure regulator valve for fit in bore. Replace entire pump assembly if damaged. Inspect inlet tube and screen assembly for damage.

#### Reassembly & Installation

1. Install pump gears into pump body with marked gear teeth indexed. If pick-up tube was removed, apply sealant to tube end. Tap tube end into pump using plastic hammer. Reassemble remaining components in reverse order of disassembly.
2. Prime oil pump with engine oil. Install pump and extension shaft, ensuring slot on top of extension shaft engages with drive tang on end of distributor shaft. Tighten oil pump bolt to specification. See **TORQUE SPECIFICATIONS** table. Install oil pan.

### TORQUE SPECIFICATIONS

#### TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Balance Shaft Gear Bolt	
Step 1	15 (20)
Step 2	Additional 35 Degrees
Bellhousing Bolt	32 (44)
Camshaft Sprocket Bolt	18 (25)
Connecting Rod Cap Nut	
Step 1	20 (27)
Step 2	Additional 70 Degrees
Crankshaft Damper Bolt	74 (100)

**1997 Chevrolet S10 Pickup**

1996-97 ENGINES 4.3L V6 - Trucks

Crankshaft Oil Deflector Bolt/Nut	27 (36)
Cylinder Head Bolt <sup>(1)</sup>	
Step 1	22 (30)
Step 2	
Short Bolts (No. 2, 3, 6, 7, 10, 11)	Additional 55 Degrees
Medium Bolts (No. 12, 13)	Additional 65 Degrees
Long Bolts (No. 1, 4, 5, 8, 9)	Additional 75 Degrees
Exhaust Manifold Bolt	
Step 1	11 (15)
Step 2	22 (30)
Flywheel Bolt	74 (100)
Main Bearing Cap Bolt	78 (106)
Oil Filter Adapter Bolt	16 (22)
Oil Pan Nut/Bolt	18 (25)
Oil Pump Bolt	66 (90)
Rear Crankshaft Oil Seal Retainer Bolt	11 (15)
Rocker Arm	
With Press-In Studs	
Rocker Stud	35 (47)
Rocker Nut	18 (25)
With Screw-In Studs	
Rocker Stud	35 (47)
Rocker Nut	19 (26)
Valve Lifter Retainer Bolt	12 (16)
Water Pump Bolt	33 (45)
<b>INCH Lbs. (N.m)</b>	
Balance Shaft Retainer Plate Bolts	106 (12)
Camshaft Retainer Bolt	106 (12)
Crankshaft Position Sensor Holddown Bolt	80 (9)
Front Cover Bolt	106 (12)
Intake Manifold	
Upper	
Step 1	44 (5)
Step 2	89 (10)
Lower	
Step 1	27 (3)
Step 2	106 (12)
Step 3	133 (15)
Oil Pump Cover Bolt	106 (12)
Valve Cover Bolt	89 (10)

## 1997 Chevrolet S10 Pickup

1996-97 ENGINES 4.3L V6 - Trucks

(1) Apply GM Sealant (1052080) to head bolt threads. Tighten bolts in sequence. See **Fig. 9**.

## ENGINE SPECIFICATIONS

### GENERAL SPECIFICATIONS

Application	Specification
Displacement	262 Cu. In.
Bore	4.00" (101.6 mm)
Stroke	3.48" (88.4 mm)
Compression Ratio	9.2:1
Fuel System	
VIN W	CSI
VIN X	CSI
Horsepower @ RPM	
2WD	
VIN W	180 @ 4400
VIN X	175 @ 4400
4WD	
VIN W	190 @ 4400
VIN X	180 @ 4400
Torque Ft. Lbs. @ RPM	
2WD	
VIN W	245 @ 2800
VIN X	240 @ 2800
4WD	
VIN W	250 @ 2800
VIN X	240 @ 2800

### CRANKSHAFT, MAIN & CONNECTING ROD BEARINGS

Application	In. (mm)
Crankshaft End Play	.002-.008 (.05-.20)
Main Bearings	
Journal Diameter	
No. 1	2.4488-2.4495 (62.199-62.217)
No. 2 & 3	2.4485-2.4494 (62.191-62.215)
No. 4	2.4480-2.4489 (62.179-62.203)
Journal Out-Of-Round	.0002-.001 (.005-.03)
Journal Taper (Maximum)	.0003 (.008)
Oil Clearance	
Standard	

**1997 Chevrolet S10 Pickup**

1996-97 ENGINES 4.3L V6 - Trucks

No. 1	.0008-.0020 (.020-.051)
No. 2, 3 & 4	.0009-.0024 (.023-.061)
Connecting Rod Bearings	
Journal Diameter	2.2487-2.2497 (57.117-57.142)
Journal Out-Of-Round	.0002 (.005)
Service Limit	.001 (.03)
Journal Taper	.0003 (.008)
Service Limit	.001 (.03)
Oil Clearance	.0013-.0035 (.033-.089)
Service Limit	.001-.0030 (.03-.076)
Side Clearance	.006-.017 (.15-.43)

**CONNECTING RODS**

Application	In. (mm)
Side Play	.015-.046 (.38-1.17)

**PISTONS, PINS & RINGS**

Application	In. (mm)
Pistons	
Clearance	.0007-.0020 (.018-.051)
Pins	
Diameter	.9270-.9271 (23.545-23.548)
Piston Fit	.0002-.0007 (.005-.018)
Rod Fit	.0013-.0019 (.033-.048)
Interference	
Rings	
No. 1	
End Gap	.010-.016 (.25-.41)
Side Clearance	.001-.003 (.03-.08)
No. 2	
End Gap	.018-.026 (.46-.66)
Side Clearance	.001-.003 (.03-.08)
No. 3 (Oil)	
End Gap	.015-.055 (.38-1.40)
Side Clearance	.002-.007 (.05-.18)

**CYLINDER BLOCK**

Application	In. (mm)
Cylinder Bore	
Diameter	4.0007-4.0017 (101.618-101.643)

**1997 Chevrolet S10 Pickup**

1996-97 ENGINES 4.3L V6 - Trucks

Maximum Taper	(1) .0005 (.013)
Maximum Out-Of-Round	(2) .001 (.03)
(1) Specification is for thrust side. Relief side is .001" (.03 mm).	
(2) Production specification is given. Maximum service specification is .002" (.05 mm).	

**VALVES & VALVE SPRINGS**

Application	Specification
Valves	
Face Angle	45°
Minimum Margin	.031" (.79 mm)
Valve Springs	
Free Length	2.02" (51.3 mm)
Installed Height	1.69-1.71" (42.9-43.4 mm)
Lbs. @ In. (Kg @ mm)	
Pressure	
Valve Closed	76-84 @ 1.70 (34-38 @ 43.2)
Valve Open	187-203 @ 1.27 (85-92 @ 32.3)

**CYLINDER HEAD**

Application	Specification
Valve Seats	
Intake Valve	
Seat Angle	46°
Seat Width	.035-.060" (.88-1.52 mm)
Maximum Seat Runout	.002" (.05 mm)
Exhaust Valve	
Seat Angle	46°
Seat Width	.062-.093" (1.58-2.36 mm)
Maximum Seat Runout	.002" (.05 mm)
Valve Guide Oil Clearance	.001-.003" (.03-.07 mm)
Warping	.004" (.10 mm)

**CAMSHAFT**

Application	In. (mm)
End Play	.001-.009 (.03-.23)
Journal Diameter	1.8682-1.8692 (47.452-47.478)
Lobe Lift	
Intake	.286-.290 (.0726-.0736)
Exhaust	.292-.296 (.0741-.0751)



1997 Chevrolet S10 Pickup
1996-97 ENGINES 4.3L V6 - Trucks

**BALANCE SHAFT**

Application	In. (mm)
Journal Diameter	
Front Journal	2.1648-2.1654 (54.986-55.001)
Rear Journal	1.4994-1.5000 (38.085-38.100)
Oil Clearance (Rear Journal)	.001-.004 (.03-.10)